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John Uhler Jr. Penns.
Intermittent Fever.

admitted March 21st 1822.

Small and well wifed
Lived happily ever after

With all her children.

An
Inaugural Gray,
on
Intermittent Fever,
submitted
To the examination
of the
Provost, Trustees and Medical Faculty
of the
University of Pennsylvania.
on the 12th day of February 1822.
for
The Degree
of
Doctor of Medicine;
by
John Weller Junr.
of the
City of Philadelphia.

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On Intermittent Fever.

The causes and cure of this disease have been so fully and ably investigated by every intelligent writer on this subject - so that but little remains for me to say which can throw light on its pathology or curative means - but if what can be said - should prove advantageous to the practitioner - the author will be satisfied with having endeavoured to lessen the sum of human calamity. —

By Intermittent fevers, we mean that form of disease; in which there is a succession of paroxysms, between each of which, a perfect and distinct suspension of febrile symptoms takes place. This interval is termed the apyrexia: different names, have been applied to the fever, according to the length of this interval. When there is an interval of 24 hours, between the paroxysms, it is termed quotidian; when

forty-eight hours, a Tertian; and when seven
two hours, intervened, or an attack on the first
and fourth days, it is termed a Quartan. Of each
of these primary types, there is an endless variety,
enumerated by authors. The double Tertian,
the double and triple quartans. The double
Tertian, with two paroxysms on one day, and
another on the next. The double quartan, with
two paroxysms on the first day, none on the
second and third, and two again on the fourth
day. The double quartan, with a paroxysm on the
first day, another on the second, but none
on the third. The triple quartan, with three
paroxysms every fourth day. The triple quartan
with a paroxysm every day, every fourth
paroxysm being alike.

Some of the ancient writers enumerate a
still greater variety, as cases, in which the
interval between the paroxysms, was extended
to the fifth, sixth, seventh and eighth days, and

others of one and two months and even a year; confining on these cases, the titles of menstrua, bimestrina and annua. —

These cases but seldom occur, and appear to be anomalous deviations, from the usual character of this disease. —

The spring and autumn, are the season in which this disease most generally prevails, and accordingly is termed bernal and autumnal, as it occurs in the spring or fall. The vernal yields more readily to remedial measures. —

In obstinate and long continued cases, which resist almost every mode of treatment, and especially in warm climates, they often give rise to several chronic affections, as anaerous swellings, enlargement of the Liver or Spleen &c.

The tertian is the most common form and is most easy of cure, the quartan, is next in both respects, the quartan, seldom occurs, and is difficult in the management. —

The most usual time of the paroxysms, in the different forms of intermittent fever, is as follows. A quotidian, comes on in the morning about eight o'clock, the tertian, about noon, and the quartan in the evening.

A paroxysm of intermittent fever, is divided into three stages, the cold, hot, and sweating stages. —

The cold stage commences, with languor, a sense of debility, and sluggishness in motion, frequent yawning and stretching and an aversion to food. The face and extremities become pale, the features shrink, the bulk of every external part is diminished, and the skin over every part of the body, appears constricted as if color had been applied to it. At length the patient feels very cold and universal rigor comes on, together with pain in the head, back, loins, and joints, nausea, and vomiting of bilious matter; the respiration is small, frequent

and anxious; the voice is almost colourless; sensibility is greatly impaired; the thoughts somewhat confused; and the pulse frequent, and often irregular. In a few instances drowsiness and stupor have prevailed in so high a degree, as to resemble coma or apoplexy; but this is by no means usual. —

The first stage, continues for one or two hours, when the symptoms abate, and the second stage comes on. This is marked by a suffusion of heat over the surface of the body, redness of the face, throbbing of the temples, pain in the head, any part of the skin, the tongue furred, anxiety and restlessness, and some tendency to delirium. The pulse slowly rises, and at length it becomes strong, voluminous and exceedingly vehement. —

As in the first stage, these symptoms continue for some time, but at length moisture appears on the forehead, and is soon

followed by a general diaphoresis. — The heat then abates, the thirst ceases, the respiration becomes free, the circulation tranquilized, and the functions are generally restored to their healthy condition, though generally leaving behind more or less debility. Such is the most usual form of a paroxysm of intermittent fever.

But like other diseases, anomalous cases sometimes occur. Clyburn and Senac, mention cases, in which the cold stage was absent; the same has been observed with regard to the hot stage. It has likewise been ascertained, that in some cases, the hot has preceded the cold stage. —

Dr Jackson, observes that a paroxysm sometimes terminates by a copious secretion of urine, or evacuation from the bowels, without any perspiration. —

Other irregularities are sometimes observed. They have been known to attack some one

part of the body, whilst the rest of the system remained unaffected. — an intermittent sometimes attacks the eye, which goes through the cold, hot, and sweating stages. —

D Chapman, says he has seen the same affection more than once attack the eyes. Every other day these organs were affected with extreme pain, which after awhile ceased, and a complete cure could be produced, only by the remedies, which cure intermittent fever. He also mentions a case (in his lectures) of a Lady, who consulted him, on account of a violent pain, which she felt every other day, in the lower part of the abdomen. She came from the south, which led him to conjecture, that it might be another case of irregularity of intermittent fever. After every other remedy usually employed, had failed, he cured her by the use of Fowlers solution. —

It is pretty generally admitted, at the present

day, that the most common cause of
intermittent fevers is, marsh exhalations. —

An Italian writer ~~Sant'Eliseo~~^{Landini}, first suggested
this idea, which has since received ample

confirmation by every writer upon this subject.

Miasmatæ is emitted from animal and
vegetable matter in a state of putrefaction. —
This miasmatæ may be carried by a current
of air, to the distance of eight or ten miles, in a
sufficiently active state to this disease, which
accounts for the disease frequently appearing,
at a distance from any obvious cause. —

But there are other causes which sometimes
produce intermitents, as a poor diet, great
fatigue, long watching, grief, much anxiety,
debility, exposure to cold, lying in damp
rooms, wearing damp clothes, a warm moist
cold, or damp atmosphere, the reception of
eruptions, the suppression of some long accute
evacuation, and preceding diseases, have all

been ranked among the causes of intermittent fever. Contagion has been asserted as one of its causes. But when contagion proves the cause of this disease, it always assumes a low type, as it is sometimes found in Jails, Hospitals, Ships, and other crowded places.

The influence of the Planets, has likewise been produced by authors, as a cause. But is equally denied by others. —

Treatment. — The indications of cure in intermittent fever, are two. First, to put a speedy stop to the present paroxysm, and secondly to prevent its return. —

The practice most generally pursued in the treatment of this disease is, to commence with an emetic, (Dr Chapman says, he would not use the emetic in common cases, as the other remedies will answer the purpose) after which, to administer warm beverages, warm applications to the extremities, as bottles filled

with warm water &c. and where some slight stimulant is required, wine whey should be given. —

Opium — administered in the commencement of the cold stage, has been found very useful. opium acts more favourably when combined with Ether or Gtto ammonii, the dose for an adult, is about thirty drops Tinct. opii. with a tea spoonful of Ether, or thirty drops of the Gtto ammonii. The best time for administering these medicines is about an hour before the usual time of the paroxysm. —

It is a long time since the Tourniquet was proposed, by Dr Geo^e Kellie of Edinburgh, but from the total neglect of it at the present day, it does not appear to have deserved the high encomiums passed upon it by its author. —

In the treatment of the second stage (when emetic has not been previously administered) there are two indications of practice to be

procured. First, where there is irritation, caused by bile in the stomach, this should be removed by an emetic, or if vomiting has occurred, or nausea exists, we should assist nature by the administration of warm beverages, as camomile tea &c.

The second indication is to be met by diaphoretics. In Europe, particularly England, the *Pulvis antimonialis*, is highly recommended. In this country, the diaphoretic most generally used is the *Pulvis Doveri*, assisting its operation, by the administration of a warm decoction of the *Eupatorium Perfoliatum*.

The *Eupatorium Perfoliatum* alone, is a good remedy for producing perspiration, when others cannot be procured. —

Opium - alone, has been recommended in the hot stage, by Lind. Dr Chapman says, "that in plethoric patients, or those in which much inflammatory action exists, the use of opium would be very prejudicial; but in cases of an opposite

nature it is a valuable remedy. Lind wrote
in a warm climate, where there generally exists
a relaxed state of the system and a general
tendency to perspiration, here the practice is
certainly correct". —

The Spiritus Mindereri is, an exceedingly
valuable remedy, it acts promptly, and is
generally grateful to the stomach, the dose is
a table spoonful of the saturated solution, up to
according to the necessity of the case, generally
given about every hour or two.

The proceeding is the treatment necessary in
ordinary cases of the disease. But when it is
of an inflammatory character, as it sometimes is,
the treatment is different. This character is
generally observed in the spring, and during the
prevalence of inflammatory epidemics. —

When the fever is of the above mentioned type
the pulse is vigorous and strong, the face and skin
flushed, the respiration difficult and laborious.

and acute pain in the head, sides, or chest. When these symptoms present themselves, copious bleeding is indicated, the stomach and bowels should be evacuated by emetics and cathartics. —

But it sometimes takes on a typhoid character, these cases often occurs in Hospitals,ails, and other crowded places, and during the prevalence of typhus epidemics. — The treatment to be adopted here, is of the cordial and stimulating kind, or those remedies, which are best calculated to support and give tone to the system, and to arrest a tendency to a typhus condition. —

We are now to treat of those numerous remedies which are used during the apyrexia, or to prevent a recurrence of the paroxysm.

The remedy which has always been considered best adapted for this purpose, ever since its introduction into the treatment of this disease, is the Crotal Puerariae. This article has been and still continues to be considered, by many,

practitioners, a specific in intermittent fever. But hereafter I shall take an opportunity to show that it possesses some disadvantages, and will introduce an article, which possesses many of the virtues and but few of the dis-advantages of the Bark.

In the use of the Cortex Peruviana, in the cure of intermitents, previous evacuation is generally prescribed, before so it is resorted. These evacuations are emetics or cathartics, or both: the articles used for this purpose, are art. Tart. or Yuccacanha and Salomet, after which the exhibition of Bark is immediately commenced, in doses of about 3j or more, every two hours, until the state of the system be too much excited, in which case, we previously reduce the pulse, by general bleeding, or by the application of cups or leeches, when a topical affection exists.

In the administration of the Cortex peruviana, the practitioner has frequently a number of

embarrassing circumstances to contend with,
the bark not unfrequently, excites nausea and
vomiting, it is likewise apt to act upon the
bowels, either producing diarrhoea or constipation.
In the first case it is customary to combine
it with aromatics, as *Serpentaria*, *Myrra*,
Cortex aurantia, *nux moschata*, or *Cortex*
cinnamomi &c. and secondly, to prevent its
running off by the bowels, it is combined with
small quantities of opium, and thirdly, to obviate
constipation small doses of *Palmarum Rhei* are used.

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There is a total inability in many cases to
administer it in any shape, in consequence
of the size of the dose, the irritability of the
stomach or bowels, and the obstinacy of the
patient. By some practitioners it has been
customary in some of these cases to resort to
the rectum, and for this purpose, the bark has
been used in form of injection. It has likewise
been applied to the surface, in different ways,

by poultices of it applied to the stomach, by a warm bath of the decoction, either topical or general; by strewn the powder over the sheets, by girdling it in a jacket and worn next the body. These different modes of using the bark, are very uncertain. —

Fowler's Solution - is generally considered next in importance to the Cort. Peruv. It enjoys some advantages over this article, particularly where the bark disagrees with the stomach &c or where there is rather too much inflammatory action of the system; it may be used in the cases of children, where it is more easily administered than the bark, in consequence of its insipidity. But this article too has its disadvantages, it sometimes produces nausea and vomiting, and when long continued will produce adence. The dose is from six to ten drops, three times a day. —

A case was related to me by a practitioner

residing in the country, of a patient of his, with
intermittent fever, (a strong robust man) who by
mistake, took a tea-spoonful of Fowler's solution,
there were no alarming symptoms produced,
and he effectually recovered, without having
another paroxysm of the disease. He concluded
from this, that the practice might be invited
in some measure, a few days after, a person
called upon him, a ~~man~~ who had had a violent
paroxysm of Intermittent, as he was a very robust
man, he prescribed, twenty five drops of Fowler's
solution, to be taken three times a day. The
patient recovered without having another
paroxysm. — This practice if extended to
every case, would doubtless prove highly
pernicious, but it appears to be perfectly safe
in that particular class of our patients resembling
the two cases spoke of. —

It would occupy too great a space in this
epay, to give a complete history of every article

which has been employed in the cure of this disease. I will merely enumerate the other articles most usually employed, and then introduce to your notice the Ferrum ammoniacale.

The Serpentaria Virginiana, has been very lightly spoken of by some practitioners, it appears to be best adapted to the milder forms of the disease. A very good formula for administering it, recommended by Dr Chapman, is the following.

P. Pulv. cont. Peruv. — 3*sp.*

" Rad. Verb. — 3*j.*

Carb. Soda. — ~~gr~~^{xxx} etc
div. in pulv. As II.

one of which is to be taken every three or four hours.
The Eupatorium Perfoliatum, has been recommended; it may be so prepared, as to be administered at every stage, given in powder, decoction or infusion. —

The Chiononia angularis, has likewise been used, like the above article, it may be

administered in every stage, given in decoction or infusion, as much as the stomach will bear.

The Prunus Virginiana, has been used with advantage by some practitioners. —

The Eupatorium Pilosum, this article is very much used in the Southern states, it is said to be advantageously combined with the peruvian bark, though it may frequently be used were bark is inadmissible. It is usually given in form of infusion: one ounce of the dried leaves, infused into a quart of water, may be taken daily, in doses of from two to four ounces every hour or two. —

The Cornus Florida and Cornus Sericea, the effects of these articles on the system are similar to the peruvian bark, though rather more stimulating. They are closely allied to the peruvian bark in their sensible and chemical qualities. — The bark of each species of cornel may be exhibited in all the forms in which the peruvian bark is

used, and nearly in the same dose.

The Pinus benthamii, has been highly recommended by some writers, given in the same manner as the Peruvian bark. —

The bark of the different oak have been used with success. The dose and manner of administration the same as the previous bark. —

The different species of Willow and Poplar, has
been much esteemed by some practitioners, the
Linden or Slipper was
peculiarly popular and much used by
Dr Rush, during the revolutionary war, he
considered them as little inferior to the
Peruvian bark. —

The *Cusparia Lebrifuga*, was once used with a great deal of confidence. The dose is from a scupe to a drachm, repeated the same as the permissioned.

The Srietanic Febri�go, has also been present
here, has been highly recommended. The following
formula is given by Dr Chapman. —

P. Pulv. G. Kino - zij. - Pulv. Rad. Gentian. - 39 -

Puls. g. plic. g. q. st. ad. in puls. xij. one to be taken every two hours during the apyrexia. —

Calcaro Ligni, has likewise been very highly recommended; it is said to have proved successful, when the Bark and arsenic had failed. Dr Chapman, says he would prefer it, where there is any dysentery connected with the intermittent. The dose, is a tea spoonful of the powder every two or three hours, during the apyrexia. —

Sulphur, has also been favourably spoken of; among others, by Dr Physick. Dr Chapman thinks it is not without utility, in the chronic nervous affection, of an intermittent nature. The mode in which he administers it, is in small doses, and at short intervals, that it may not act upon the bowels, about thirty or forty grains, every three or four hours. —

The Calphas Cupri, has been prescribed with advantage. Dr Chapman speaks very highly of

it, in protracted intermittent, and especially in the quartan fevers. —

The Cuprum ammoniacum, has also been prescribed by some practitioners. —

The different preparations of Lime, likewise. —

Alum, is also employed by some, concerning the utility of this article, a variety of opinions exist, some practitioners say it produces nausea, and others, that it is very grateful to the stomach when combined with aromatics seldom disagree with that organ. It is said to be particularly useful, when this disease is accompanied with an affection of the bowels, as dysentery &c. This is from five to ten grains, combined with opium but when the stomach will not bear so much, the dose must be diminished. —

The Saccharum Saturni, during the late war it is said to have been much employed, and with great advantage by some of the physicians of the army. It is said even apertees to have

proven superior to arsenic or peruvian bark.
But Dr Chapman says he suspects these accounts
are exaggerated, and his experience with the
sachet. Satumi convinces him that it surely does
good. —

The Selaginella arvensis, is a narcotic, acts as a
cordial to the system, and often produces sleep.
Dr Jackson recommends it very strenuously;
the dose is from ~~that~~ five grains, in pills, given
every four or five hours. The root of the black
spider, which is found inellan, should be
selected as it is better than the other species. —

Animal Gluten, has had a number of
advocates in France and England, and in
this country it is said to have proven
efficual, when other remedies have failed. —

Dr Chapman says he has cured a cases of
intermittent fever, which had resisted, bark,
arsenic &c. by administering an emetic every day,
for five, six or seven days, he says it acts by causing

a powerful impression on the stomach and thus breaking up that chain of associated morbid action. —

after all we sometimes meet with obstinate cases, which will not yield to any of the numerous remedies already mentioned.

These obstinate cases generally depend on congestion, or other disease of the viscera.

In these cases Mercury has been found a valuable remedy, the salivation should be kept up for two or three weeks.

as a substitute for mercury, Blisters have been found highly useful in some cases. They operate pretty much on the same principle as mercury, by causing a counter impression. They should be applied to the extremities, and not hasty dried up. —

When all our remedies have failed, a last resort is, to a long journey on horseback.

Eating for six or eight hours, and a practice

the reverse, has sometimes proved beneficial.—

I will now introduce an article, which has hitherto been little spoken of. The Serum ammoniacale or Flores Martialis. It appears to possess several advantages over the common Barks and essences.

First, by the smallness of the dose, it may be formed into pills. Secondly, it is not so liable to produce nausea and vomiting, as either the peruvian bark or Fowler's solution, which is certainly a very important circumstance, for as has been hitherto said, we frequently meet with cases of intermittent fever, in which it is impossible for the patient to retain, assuage, or any preparation of barks. I have seen a case in which the patient laboured under this disadvantage, the Fowler's solution, bark in substance, tincture, or decoction, produced so much nausea and vomiting, that I was compelled to lay them aside, although the dose of either was very small. I commended

The use of the Ferum ammoniacale, the patient was able to bear it on his stomach without producing nausea, and he recovered in a few days. The common dose is about two grain in form of pill, given three times a day during the apyrexia. It will sometimes be necessary gradually to increase the dose.

My Brother Dr. Geo. Ulster, for the last two or three years, has been in the practice of prescribing the Ferum ammoniacale, in a large number of cases with uniform success, in many of which, the arsenic and every preparation of bark had failed. —

When I commenced this Essay, I expected to have adduced the history of a number of such cases, but unfortunately my Brother did not record them, which precludes the possibility of giving a detailed account.

But from the experience of my Brother with the article, and from what I have myself seen

of its beneficial effects, I am led to believe it, as
valuable acquisition in the cure of intermittent
fever, certainly a very distressing affection. —

D^r Knight, of this city has favoured me with
the following communication, on the use of the Tonic Salts.

" agreeably to your request I will briefly state
the result of my experience in the use of the
Saltrope of Iron, — within the last two years I have
frequently prescribed that medicine in various
forms of disease in which a tonic treatment
appeared to be indicated, and have found it as
efficacious as any of the chalybeate preparations,
while its perfect solubility in water and being
free from any unpleasant taste, gives it in many
cases a decided advantage over those in
common use — particularly in the treatment
of the diseases of children. —

During the late autumnal epidemic I have
several opportunities of witnessing its good effects
in Intermittent Fever, one of the most difficult

cases of the disease that came under my notice
was that of my own daughter (aged eight years) who
resided during the summer in Germantown, where
she contracted the disease prevailing at that place
and was brought to the city a few days after her
attack (on the 11th October) the disease put in the simple
tertian form, having promised a proper evacuator
I attempted to administer the cinchona, but found
that the extreme irritability of her stomach and
general aversion to medicine that I found it
impossible to get any of this medicine to remain
on her stomach, although a variety of preparations
and combinations were tried — Tinct. opii. in
anticipation of the fit was used several times
without success, — Rosemary was next used, but
although she took only five drops three times a day
in about three days she became affected with general
edematous swelling, which detained me from continuing
the use of that article — upwards of two weeks had
now elapsed in making fruitless attempts to arrest

the disease, while her appetite and general strength
had failed to an alarming degree - and the fever
had assumed the double tertian form - I now
prepared a solution of the Tincture of Iron - two
drachms of the tincture to six ounces of sweetened
water, she took a table spoonful every three hours -
she took the medicine without difficulty and
it was retained on her stomach, the third day
after she began to use it, she missed her chill, and
was soon convalescent - she continued the medicine
twice a day two weeks, and has since enjoyed an
unusual degree of health. —

A few days after her recovery I was called to a
child of Mr J. Z. R. - aged 4 years - also affected with tertian
fever - an Emetic and the solution of Tincture of Iron
were the only medicines prescribed - the child had
only three paroxysms. —

Two other cases that occurred in the month of
October were treated with the Iron, with the
same success. —

True